

# CRACK SEALING

REV. 9/19

## **CONTRACT AWARD BY GEOGRAPHIC REGION**

AWARDED BY TDOT REGION – Region locations are in the Description field in the line items – *ensure that you are only bidding on the region(s) you are interested in providing services to. All lines for the region you are bidding should have a response.*

## **DEFINITIONS:**

**TDOT – Tennessee Department of Transportation**

**QPL – Qualified Products List found at <https://www.tn.gov/tdot/materials-and-tests/research---product-evaluation-and-qualified-products-list.html>**

**TDOT APPLICATION FOR ITEMS: 1000157134, 1000157135, 1000157136, 1000157137, 1000157138, 1000157139, 1000157140, 1000157141**

- A.) JOINT SEALER MATERIAL MEETING THE ATTACHED MINIMUM SPECIFICATIONS AND APPROVED BY TDOT MATERIALS & TEST QUALIFIED PRODUCTS LIST 5. SECTION C. (MINIMUM ORDER OF 4,800 LBS)
- B.) EQUIPMENT RENTAL TO APPLY PRODUCT LISTED ABOVE. UNIT MUST MEET THE ATTACHED MINIMUM SPECIFICATIONS AND BE COMPATIBLE WITH PRODUCT LISTED ABOVE. PRICE PER MONTH (ANY TIME USED OVER 30 DAYS WILL BE PRO-RATED AT MONTHLY RATE DIVIDED BY 30 TO EQUATE TO A DAILY RATE) NOTE: ANY DOWNTIME FROM MACHINE WILL BE DEDUCTED FROM MONTHLY RATE ON A DAY BY DAY BASIS.

**CONTRACTOR APPLICATION FOR LINES: 1000157143, 1000157146, 1000157147, 1000157301, 1000157302, 1000157148, 1000157151, 1000157152, 1000157303, 1000157304, 1000157153, 1000157156, 1000157157, 1000157305, 1000157306, 1000157158, 1000157161, 1000157162, 1000157307, 1000157308**

**NOTE: TDOT engineer will determine the most cost effective method of repair per job site.**

**SPECIAL NOTE: Job sites may consist of state routes and interstate lane miles. Working hours for application of Crack Sealing listed below:**

Roadway Classification	Roadway ADT	Working Hours
Interstate and Access Controlled Highways	All	8:00 PM – 6:00 AM
Multi-lane Highways (# of lanes >2)	ADT $\geq$ 25,000	8:00 PM – 6:00 AM
	10,000 $\leq$ ADT < 25,000	8:00 PM – 6:00 AM
		9:00 AM – 3:00 PM
	ADT < 10,000	No Working Restrictions
Two Lane Highways (One lane in each direction)	ADT $\geq$ 25,000	8:00 PM – 6:00 AM
	5,000 $\leq$ ADT < 25,000	8:00 PM – 6:00 AM
		9:00 AM – 3:00 PM
	ADT < 5,000	No Working Restrictions

**In addition, high volume traffic areas during rush hour or special events will require coordination at the direction of the TDOT Engineer.**

- A.) CONTRACTOR INSTALLED CRACK SEALING-AIR CLEANED/FLUSH FILLED METHOD (CONCENTRATED APPLICATION) AS PER ATTACHED MINIMUM SPECIFICATIONS TO BE PAID ON A PER POUND PRICE. PRICE PER LB. (MINIMUM CALL OUT PER JOB TO BE 4,800 LBS) APPROVED BY TDOT MATERIALS & TEST QUALIFIED PRODUCTS LIST 5. SECTION C.
- B.) CONTRACTOR INSTALLED CRACK SEALING-AIR CLEANED/FLUSH FILLED METHOD (LONGITUDINAL/TRANSVERSE APPLICATION) AS PER ATTACHED MINIMUM SPECIFICATIONS. TO BE PAID ON A PER POUND BASIS. (MINIMUM CALL OUT PER JOB TO BE 35 LANE MILES) APPROVED BY TDOT MATERIALS & TEST QUALIFIED PRODUCTS LIST 5. SECTION C.
- C.) CONTRACTOR INSTALLED CRACK SEALING- CRACK ROUTED/FLUSH FILLED METHOD (LONGITUDINAL APPLICATION MAXIMUM  $\frac{1}{2}$ " X  $\frac{3}{4}$ ") AS PER ATTACHED MINIMUM SPECIFICATIONS TO BE PAID ON A PER POUND BASIS. PRICE PER LANE POUND (MINIMUM CALL OUT PER JOB TO BE 35 LANE MILES) APPROVED BY TDOT MATERIALS & TEST QUALIFIED PRODUCTS LIST 5. SECTION C.

D.) MOBILIZATION PER CALL OUT (LUMP SUM PER PURCHASE ORDER)

E.) TRAFFIC CONTROL PER CALL OUT (PER DAY) NOTE: TDOT RESERVES THE RIGHT TO PROVIDE TRAFFIC CONTROL PER JOB.

## **SPECIFICATIONS FOR TDOT JOINT SEALER (TDOT APPLIED)**

**ITEMS: 1000157134, 1000157135, 1000157136, 1000157137, 1000157138, 1000157139, 1000157140, 1000157141**

Crack-seal equipment supplied with material for “do-it-yourself application”.

1. The crack-seal material shall be approved hot-pour material listed on the TDOT QPL (qualified products list) and delivered on pallets to the TDOT district where the contract is in place. (Attached List of District addresses)

**Materials.** The sealant shall be a **Hot-Poured Elastic Type Joint Sealer, Type II** conforming to the requirements of ASTM D6690 with the following exceptions. The sealant shall be listed on the Department’s Qualified Products List 5. Section C. Hot Pour Joint Sealers.

**The specification limits for sealant shall be as follows:**

<b><u>TEST</u></b>	<b><u>Specification</u></b>
Cone Penetration (ASTM D5329)	20-40
Resilience (ASTM D5329)	30% min.
Softening Point (ASTM D36)	210°F (99°C) min.
Ductility, 77F (25C) (ASTM D113)	16in (40cm) min.
Flexibility (ASTM D3111 Modified)	Pass at 30°F (-1°C)
Flow 140°F (60°C) (ASTM D5329)	0.2in (0.5cm) max
Brookfield Viscosity, 400°F (204°C) (ASTM D2669)	100 Poise max.

Asphalt Compatibility (ASTM D5329)	Pass
Bitumen Content (ASTM D4)	60% min
Tensile Adhesion (ASTM D5329)	400% min.
Safe Heating Temperature	As recommended by the Manufacturer
Recommended Pour Temperature	As recommended by the Manufacturer

Storage, heating, application instructions and cautions shall be supplied with each shipment. The sealant shall be able to be reheated to application temperature at least once after the initial heat up without degradation of sealant specifications. The joint sealer shall be a mixture of virgin synthetic rubber or reclaimed rubber or a combination of the 2 with asphalt and plasticizers and tacifiers. Ground cured rubber scrap shall not be used. The sealer shall be free of foreign materials, and when melted shall be free of lumps. The material will be kept within the temperature range recommended by the Manufacturer. The Contractor shall furnish the Engineer with a certified statement from the Manufacturer of the sealant showing compliance with this specification together with a certified copy of the test report.

2. The price shall be per pound of material and will include delivery of material and equipment, specified in item number 1-8, to the designated TDOT district. The contract shall be per region in Tennessee with an individual contract for maintenance regions one, two, three and four.

3. There shall be a 4,800 lb minimum order to secure equipment and place an order.

4. The crack-seal machine provided will be a heated hose applicator with an oil-jacketed melter. The machine shall be all diesel powered for safety and the burner and engine shall be powered by diesel fuel only. The unit shall be equipped with 125 CFM air compressor for cleaning cracks prior to sealing. The unit shall be computer controlled to keep temperatures within specified ranges and minimize danger and shall be equipped with a burner system with auto shut off capability. The capacity of the machine shall be 125 gallons minimum. The unit shall have a flow regulator with the ability to adjust the flow of material as well as the speed of agitation within the melter.

5. The provider of the applicator shall maintain in working order at least one machine per region where they maintain the contract. In the event of machine failure the provider shall maintain a contractual relationship for repair within the Region Contract location qualified to repair the melter/applicator.

6. The provider of the equipment shall have training staff from the manufacturer to provide training, as needed, for the TDOT crew utilizing the equipment. The training shall be at no additional cost and retraining as necessary will be provided. Training will include 6 people per region for a maximum two hour training as needed.

## **SPECIFICATIONS FOR TDOT CRACK-SEAL (TDOT APPLIED)**

**ITEMS: 1000173523, 1000173524, 1000173525, 1000173526, 1000173527, 1000173528, 1000173529, 1000173530**

Crack-seal equipment supplied with material for “do-it-yourself application” of patching and sealing of cracks of widths between  $\frac{3}{4}$  of an inch to 12 inches and depths of no more than 4 inches.

1. The crack-seal material shall be an approved hot-pour, aggregate filled, polymer modified material listed on the TDOT QPL (qualified products list) and delivered on pallets to the TDOT district where the contract is in place.

**Materials.** The sealant shall be a hot-applied polymer material containing graded aggregates. The sealant shall be listed on the Department's Qualified Products List 13. Section A. Elastomeric Patching Materials Hot Applied.

Storage, heating, application instructions and cautions shall be supplied with each shipment. The sealant shall be able to be reheated to application temperature at least once after the initial heat up without degradation of sealant specifications. The sealer shall be free of foreign materials, and when melted shall be free of lumps. The material will be kept within the temperature range recommended by the Manufacturer. The Contractor shall furnish the Engineer with a certified statement from the Manufacturer of the sealant showing compliance with this specification together with a certified copy of the test report.

2. The price shall be per pound of material and will include delivery of material and equipment, specified in the line item, to the designated TDOT district. The contract shall be per region in Tennessee with an individual contract for maintenance regions one, two, three and four.

3. There shall be a 4,800 lb minimum order to secure equipment and place an order.
4. The crack-seal machine provided will be an oil-jacketed melter. The machine shall be all diesel powered for safety and the burner and engine shall be powered by diesel fuel only. The unit shall be equipped with an air compressor for cleaning cracks prior to sealing. The unit shall be computer controlled to keep temperatures within specified ranges and minimize danger and shall be equipped with a burner system with auto shut off capability. The capacity of the machine shall be 125 gallons minimum.
5. The provider of the applicator shall maintain in working order at least one machine per region where they maintain the contract. In the event of machine failure the provider shall maintain a contractual relationship for repair within the Region Contract location qualified to repair the melter/applicator.
6. The provider of the equipment shall have training staff from the manufacturer to provide training, as needed, for the TDOT crew utilizing the equipment. The training shall be at no additional cost and retraining as necessary will be provided. Training will include 6 people per region for maximum of two hour training as needed.

## **SPECIFICATIONS FOR TDOT JOINT SEALER (CONTRACTOR APPLIED)**

**ITEMS: 1000157143, 1000157146, 1000157147, 1000157301, 1000157302, 1000157148, 1000157151, 1000157152, 1000157303, 1000157304, 1000157153, 1000157156, 1000157157, 1000157305, 1000157306, 1000157158, 1000157161, 1000157162, 1000157307, 1000157308,**

In-place hot-pour crack sealing on contract per region.

1. The crack-seal material shall be approved hot-pour material listed on the TDOT QPL (qualified products list) and the price shall include all aspects of installation within the region where the contract is activated.
2. There shall be a 4,800 lbs. minimum order and specific site location to place an order.
3. There shall be a 35 linear mile minimum order and specific location to place an order.

**Description.** This work shall consist of cleaning and filling existing longitudinal and transverse cracks having a width of 3/16 inch or greater in flexible pavements and shoulders.

**Method of Application.** All cracks shall be thoroughly cleaned with high pressure, dry compressed air removing all vegetation, debris, moisture and foreign materials, as directed by the Engineer. The sealant shall be applied to the crack with a pressure feed wand system immediately after cleaning at a temperature within the range recommended by the Manufacturer of the sealant. The sealant shall be applied using the flush fill method. The crack shall be filled level with the asphalt surface. Immediately after placement of the sealant, a v-shaped rubber squeegee shall be used to level all excess material above the asphalt surface. Any sealant above the asphalt surface must be feathered out as directed by the Engineer. The crack filling will only be allowed when both the air and pavement temperatures are within the tolerances recommended by the Manufacturer of the material.

**Materials.** The sealant shall be a Hot-Poured Elastic Type Joint Sealer, Type II conforming to the requirements of ASTM D6690 with the following exceptions. The sealant shall be listed on the Department's Qualified Products List 5. Section C. Hot Pour Joint Sealers.

The specification limits for sealant shall be as follows:

<b><u>TEST</u></b>	<b><u>Specification</u></b>
Cone Penetration (ASTM D5329)	20-40
Resilience (ASTM D5329)	30% min.
Softening Point (ASTM D36)	210°F (99°C) min.
Ductility, 77F (25C) (ASTM D113)	16in (40cm) min.
Flexibility (ASTM D3111 Modified)	Pass at 30°F (-1°C)
Flow 140°F (60°C) (ASTM D5329)	0.2in (0.5cm) max
Brookfield Viscosity, 400°F (204°C) (ASTM D2669)	100 Poise max.
Asphalt Compatibility (ASTM D5329)	Pass
Bitumen Content (ASTM D4)	60% min

Tensile Adhesion (ASTM D5329)

400% min.

Safe Heating Temperature

As recommended by the  
Manufacturer

Recommended Pour Temperature

As recommended by the  
Manufacturer

Storage, heating, application instructions and cautions shall be supplied with each shipment. The sealant shall be able to be reheated to application temperature at least once after the initial heat up without degradation of sealant specifications. The joint sealer shall be a mixture of virgin synthetic rubber or reclaimed rubber or a combination of the 2 with asphalt and plasticizers and tacifiers. Ground cured rubber scrap shall not be used. The sealer shall be free of foreign materials, and when melted shall be free of lumps. The material will be kept within the temperature range recommended by the Manufacturer. The Contractor shall furnish the Engineer with a certified statement from the Manufacturer of the sealant showing compliance with this specification together with a certified copy of the test report.

**Equipment.** The melter-appliator shall be an oil jacketed double boiler type, equipped with an agitator and separate thermometers for both the oil bath and the melting vat. All equipment necessary for the satisfactory performance of this operation shall be on the job and approved by the Engineer before work will be permitted to begin.

**Method of Measurement for Payment.** Sealant for random cracks will be measured by the pound. At the beginning of each work day, the Engineer, or his appointed representative, shall document the amount of material in the heater-melter unit and log all additional material added during the day and measure the amount of material remaining in the heater melter at the end of each day to determine the total poundage used. Payment will be made by the pound for random cracks to include but not limited to 3/16" or greater longitudinal joint at centerline to shoulder. Also, any transverse cracks having a width of 3/16" or greater. **IMPROPER APPLICATION SUCH AS OVER APPLICATION WILL NOT BE ACCEPTED, DOES NOT MEET SPECIFICATIONS AND RESULT IN NON-PAYMENT OF SERVICES ON AREAS OF IMPROPER APPLICATION.**

**NOTE: CONTRACT IS DESIGNED FOR LONGITUDINAL & TRANSVERSE CRACKS, JOINTS, AND BLOCK CRACKING. CONTRACT IS NOT DESIGNED FOR ALLIGATOR/SPIDER CRACKS THAT APPLY EXCESSIVE AMOUNTS TO THE**



**ROADWAY. OVERBANDING WILL NOT BE TOLERATED. TDOT ENGINEER WILL PROVIDE SITE SPECIFIC INSTRUCTIONS AND GUIDANCE.**

**Traffic Control.** All traffic control shall be in accordance with the Manual on Uniform Traffic Control Devices and TDOT Standard Drawing T-WZ-11, T-WZ-13, and T-WZ-15. All traffic control devices for lane closures (construction signs, portable arrow boards, cones, etc.) Lane closures shall be of sufficient length to accomplish significant work.

Where raised pavement markers exist, the contractor shall protect the markers during the cleaning and sealing process.

## **SPECIFICATIONS FOR TDOT CRACK-SEAL (CONTRACTOR APPLIED)**

**ITEMS:** 1000173515, 1000173516, 1000173517, 1000173518, 1000173519, 1000173520, 1000173521, 1000173522

In-place hot-pour crack sealing on contract per region.

1. The crack-seal material shall be an approved hot-pour, aggregate filled, polymer modified material listed on the TDOT QPL (qualified products list) and the price shall include all aspects of installation within the region where the contract is activated.

2. There shall be a 4,800 lbs. minimum order and specific site location to place an order.

**Description.** This work shall consist of cleaning and filling existing longitudinal and transverse cracks having widths between  $\frac{3}{4}$  of an inch to 12 inches and depths of no more than 4 inches in flexible pavements and shoulders.

**Method of Application.** All cracks shall be thoroughly cleaned with high pressure, dry compressed air removing all vegetation, debris, moisture and foreign materials, as directed by the Engineer. The sealant shall be applied to the crack with a pressure feed wand system immediately after cleaning at a temperature within the range recommended by the Manufacturer of the sealant. The sealant shall be applied using the flush fill method. The crack shall be filled level with the asphalt surface. Immediately after placement of the sealant, a v-shaped rubber squeegee shall be used to level all excess material above the asphalt surface. Any sealant above the asphalt surface must be feathered out as directed by the Engineer. The

crack filling will only be allowed when both the air and pavement temperatures are within the tolerances recommended by the Manufacturer of the material.

**Materials.** The sealant shall be a hot-applied polymer material containing graded aggregates. The sealant shall be listed on the Department's Qualified Products List 13. Section A. Elastomeric Patching Materials Hot Applied.

Storage, heating, application instructions and cautions shall be supplied with each shipment. The sealant shall be able to be reheated to application temperature at least once after the initial heat up without degradation of sealant specifications. The sealer shall be free of foreign materials, and when melted shall be free of lumps. The material will be kept within the temperature range recommended by the Manufacturer. The Contractor shall furnish the Engineer with a certified statement from the Manufacturer of the sealant showing compliance with this specification together with a certified copy of the test report.

**Equipment.** The melter-aplicator shall be an oil jacketed double boiler type, equipped with agitator and separate thermometers for both the oil bath and the melting vat and shall be computer controlled to keep temperatures within specified ranges and minimize danger and shall be equipped with a burner system with auto shut off capability. All equipment necessary for the satisfactory performance of this operation shall be on the job and approved by the Engineer before work will be permitted to begin

**Method of Measurement for Payment.** Sealant for random cracks will be measured by the pound. At the beginning of each work day, the Engineer, or his appointed representative, shall document the amount of material in the heater-melter unit and log all additional material added during the day and measure the amount of material remaining in the heater melter at the end of each day to determine the total poundage used. Payment will be made by the pound for random cracks and potholes to include but not limited to 3/4" to 12" longitudinal joint at centerline to shoulder. Also, any transverse cracks having a width of 3/4" to 12". **IMPROPER APPLICATION SUCH AS OVER APPLICATION WILL NOT BE ACCEPTED, DOES NOT MEET SPECIFICATIONS AND RESULT IN NON-PAYMENT OF SERVICES ON AREAS OF IMPROPER APPLICATION.**

**NOTE: CONTRACT IS DESIGNED FOR LONGITUDINAL & TRANSVERSE CRACKS, JOINTS, AND BLOCK CRACKING. CONTRACT IS NOT DESIGNED FOR ALLIGATOR/SPIDER CRACKS THAT APPLY EXCESSIVE AMOUNTS TO THE ROADWAY. OVERBANDING WILL NOT BE TOLERATED. TDOT ENGINEER WILL PROVIDE SITE SPECIFIC INSTRUCTIONS AND GUIDANCE.**

**Traffic Control.** All traffic control shall be in accordance with the Manual on Uniform Traffic Control Devices and TDOT Standard Drawing T-WZ-11, T-WZ-13, and T-WZ-15. All traffic control devices for lane closures (construction signs, portable arrow boards, cones, etc.) Lane closures shall be of sufficient length to accomplish significant work.

Where raised pavement markers exist, the contractor shall protect the markers during the cleaning and sealing process.